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» Key

IEEE JNL IEEE Journal or Magazine

IEE JNL IEE Journal or Magazine

IEEE CNF IEEE Conference Proceeding

IEE CNF IEE Conference Proceeding

IEEE STD IEEE Standard

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- ☐ 1. **Human-robot interaction using facial gesture recognition**
Zelinsky, A.; Heinzmann, J.;
[Robot and Human Communication, 1996., 5th IEEE International Workshop on](#)
11-14 Nov. 1996 Page(s):256 - 261
Digital Object Identifier 10.1109/ROMAN.1996.568837
[AbstractPlus](#) | Full Text: [PDF\(1304 KB\)](#) IEEE CNF
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- ☐ 2. **Face animation based on observed 3D speech dynamics**
Kalberer, G.A.; Van Gool, L.;
[Computer Animation, 2001. The Fourteenth Conference on Computer Animati](#)
7-8 Nov. 2001 Page(s):20 - 251
Digital Object Identifier 10.1109/CA.2001.982373
[AbstractPlus](#) | Full Text: [PDF\(1199 KB\)](#) IEEE CNF
[Rights and Permissions](#)
- ☐ 3. **Human face watermarking based on Zernike moments**
Tzouveli, P.; Ntalianis, K.; Kollias, S.;
[Signal Processing and Information Technology, 2005. Proceedings of the Fifth](#)
[International Symposium on](#)
18-21 Dec. 2005 Page(s):399 - 404
Digital Object Identifier 10.1109/ISSPIT.2005.1577130
[AbstractPlus](#) | Full Text: [PDF\(438 KB\)](#) IEEE CNF
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- ☐ 4. **Face tracking and hand gesture recognition for human-robot interaction**
Brethes, L.; Menezes, P.; Lerasle, F.; Hayet, J.;
[Robotics and Automation, 2004. Proceedings. ICRA '04. 2004 IEEE Internatio](#)
Volume 2, Apr 26-May 1, 2004 Page(s):1901 - 1906 Vol.2
Digital Object Identifier 10.1109/ROBOT.2004.1308101
[AbstractPlus](#) | Full Text: [PDF\(558 KB\)](#) IEEE CNF
[Rights and Permissions](#)
- ☐ 5. **Speech enhancement in noise and within face mask (microphone array a**
Kang, G.S.; Moran, T.M.;
[Acoustics, Speech, and Signal Processing, 1998. ICASSP '98. Proceedings of](#)
[International Conference on](#)
Volume 2, 12-15 May 1998 Page(s):1017 - 1020 vol.2

Digital Object Identifier 10.1109/ICASSP.1998.675440

[AbstractPlus](#) | Full Text: [PDF\(360 KB\)](#) IEEE CNF
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- ☐ 6. **Construction of 3-D micro structure by multi-face FAB, co-focus rotation; various mechanical tools**
Hatamura, Y.; Nakao, M.; Sato, T.; Koyano, K.; Ichiki, K.; Sangu, H.; Hatakeya T.; Nagai, K.;
[Micro Electro Mechanical Systems, 1994. MEMS '94. Proceedings. IEEE Work](#)
25-28 Jan. 1994 Page(s):297 - 302
Digital Object Identifier 10.1109/MEMSYS.1994.555826
[AbstractPlus](#) | Full Text: [PDF\(456 KB\)](#) IEEE CNF
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- ☐ 7. **Geometric blur for template matching**
Berg, A.C.; Malik, J.;
[Computer Vision and Pattern Recognition, 2001. CVPR 2001. Proceedings of the](#)
[Computer Society Conference on](#)
Volume 1, 2001 Page(s):I-607 - I-614 vol.1
Digital Object Identifier 10.1109/CVPR.2001.990529
[AbstractPlus](#) | Full Text: [PDF\(1134 KB\)](#) IEEE CNF
[Rights and Permissions](#)

- ☐ 8. **Error recovery in critical infrastructure systems**
Knight, J.C.; Elder, M.C.; Xing Du;
[Computer Security, Dependability and Assurance: From Needs to Solutions, 1998](#)
7-9 July 1998 & 11-13 November 1998 Page(s):49 - 71
Digital Object Identifier 10.1109/CSDA.1998.798357
[AbstractPlus](#) | Full Text: [PDF\(780 KB\)](#) IEEE CNF
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- ☐ 9. **Joint feature-basis subset selection**
Avidan, S.;
[Computer Vision and Pattern Recognition, 2004. CVPR 2004. Proceedings of the](#)
[Computer Society Conference on](#)
Volume 1, 27 June-2 July 2004 Page(s):I-283 - I-290 Vol.1
Digital Object Identifier 10.1109/CVPR.2004.1315044
[AbstractPlus](#) | Full Text: [PDF\(335 KB\)](#) IEEE CNF
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- ☐ 10. **Lessons learnt from five years of experience in ERP requirements engineering**
Daneva, M.;
[Requirements Engineering Conference, 2003. Proceedings. 11th IEEE International](#)
8-12 Sept. 2003 Page(s):45 - 54
[AbstractPlus](#) | Full Text: [PDF\(268 KB\)](#) IEEE CNF
[Rights and Permissions](#)

- ☐ 11. **Dynamic time warping for off-line recognition of a small gesture vocabulary**
Corradini, A.;
[Recognition, Analysis, and Tracking of Faces and Gestures in Real-Time Systems](#)
[Proceedings. IEEE ICCV Workshop on](#)
13 July 2001 Page(s):82 - 89
Digital Object Identifier 10.1109/RATFG.2001.938914
[AbstractPlus](#) | Full Text: [PDF\(600 KB\)](#) IEEE CNF
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- ☐ 12. **Impact of RSF with variable coefficients for CD variation analysis including**
Goda, A.; Misaka, A.; Odanaka, S.;
[Statistical Metrology, 1999. IWSM. 1999 4th International Workshop on](#)

12 June 1999 Page(s):62 - 65
Digital Object Identifier 10.1109/IWSTM.1999.773197
[AbstractPlus](#) | Full Text: [PDF\(288 KB\)](#) IEEE CNF
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☐ **13. Analysis-by-synthesis and example based animation with topology constraints**

Jockusch, S.; Ritter, H.;
[Image Processing, 1994. Proceedings. ICIP-94., IEEE International Conference on](#)
Volume 3, 13-16 Nov. 1994 Page(s):953 - 957 vol.3
Digital Object Identifier 10.1109/ICIP.1994.413704
[AbstractPlus](#) | Full Text: [PDF\(584 KB\)](#) IEEE CNF
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☐ **14. Integration of gaze and gesture detection in nature language instructing assembly scenario**

Jianwei Zhang; Baier, T.; Hueser, M.;
[Robot and Human Interactive Communication, 2002. Proceedings. 11th IEEE Workshop on](#)
25-27 Sept. 2002 Page(s):241 - 246
Digital Object Identifier 10.1109/ROMAN.2002.1045629
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Human-robot interaction using facial gesture recognition

[Zelinsky, A.](#) [Heinzmann, J.](#)

Dept. of Syst. Eng., Australian Nat. Univ., Canberra, ACT, Australia;

This paper appears in: [Robot and Human Communication, 1996., 5th IEEE Internatio](#)

Publication Date: 11-14 Nov. 1996

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Meeting Date: 11/11/1996 - 11/14/1996

Location: Tsukuba

INSPEC Accession Number:5502130

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Abstract

People naturally express themselves through facial gestures and expressions. Our goal gesture human-computer interface for use in robot applications. We have implemented a person's facial features in real time (30 Hz). Our system does not require special illumination. The work is focused on real-time face tracking using dedicated hardware based matching. Tracking using template matching suffers from changing shade and deformation disappearance of facial features. By using multiple Kalman filters we accurately predict facial features. This is despite disturbances and rapid movements of the head (including rotational motion). Since we reliably track the face in real-time we are also able to recognize the face. Our system can recognize a large set of gestures ranging from "yes", "no" and detecting winks, blinks and sleeping

Index Terms

Inspec

Controlled Indexing

[Kalman filters](#) [computer vision](#) [face recognition](#) [image matching](#) [interactive : man-machine systems](#) [real-time systems](#) [robots](#) [tracking](#) [user interfaces](#)

Non-controlled Indexing

[Kalman filters](#) [face tracking](#) [facial gesture recognition](#) [human-computer interaction](#) [robot interaction](#) [real time systems](#) [template matching](#)

Author Keywords

Not Available

References

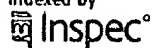
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EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	116	((face faces facial) and (template\$1 kernal\$1 mask\$1) and (unsharp\$5 blur\$4 focus\$4)).clm.	US-PGPUB	OR	OFF	2006/12/22 10:54
L2	40	((face faces facial) and ((template\$1 kernal\$1 mask\$1) same (unsharp\$5 blur\$4 focus\$4))).clm.	US-PGPUB	OR	OFF	2006/12/22 10:58
L3	76	1 not 2	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/12/22 10:58

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	63828	(image\$1 and (template\$1 or mask\$1 or kernal\$1 or reference\$1)) and (match or compare)	USPAT	OR	OFF	2003/11/20 14:22
S2	14913	((image\$1 and (template\$1 or mask\$1 or kernal\$1 or reference\$1)) and (match or compare)) and face	USPAT	OR	OFF	2003/08/14 15:05
S3	565	((image\$1 and (template\$1 or mask\$1 or kernal\$1 or reference\$1)) and (match or compare)) and face and ((degree near2 (match or similarity)) or similarity)	USPAT	OR	OFF	2003/08/14 15:53
S4	883	382/165,195,201,209.ccls.	USPAT	OR	OFF	2003/08/14 16:24
S5	805	382/165,195,201,209.ccls. and (template\$1 or mask\$1 or kernal\$1 or reference)	USPAT	OR	OFF	2003/08/14 16:25
S6	523	(382/165,195,201,209.ccls. and (template\$1 or mask\$1 or kernal\$1 or reference)) and fac\$4	USPAT	OR	OFF	2006/12/22 10:13
S7	890	Takemoto.in.	USPAT	OR	OFF	2003/11/19 09:36
S8	22165	Fuji.as.	USPAT	OR	OFF	2003/11/19 09:37
S9	20	Takemoto.in. and Fuji.as.	USPAT	OR	OFF	2003/11/19 09:41
S10	0	fac\$^ near3 template	USPAT	OR	OFF	2003/11/19 09:41
S11	1049	fac\$6 near3 template	USPAT	OR	OFF	2003/11/19 09:42
S12	0	(fac\$6 near3 template) and rotat43	USPAT	OR	OFF	2003/11/19 09:42
S13	464	(fac\$6 near3 template) and rotat\$3	USPAT	OR	OFF	2003/11/19 09:43
S14	16	(US-5912721-\$ or US-5901246-\$ or US-5850470-\$ or US-5842194-\$ or US-6529630-\$ or US-6529613-\$ or US-6498868-\$ or US-6501857-\$ or US-6075557-\$ or US-6072894-\$ or US-6038333-\$ or US-6035055-\$ or US-6018592-\$ or US-5982912-\$ or US-5963670-\$ or US-5917940-\$).did.	USPAT	OR	OFF	2003/11/19 15:58
S15	4	((US-5912721-\$ or US-5901246-\$ or US-5850470-\$ or US-5842194-\$ or US-6529630-\$ or US-6529613-\$ or US-6498868-\$ or US-6501857-\$ or US-6075557-\$ or US-6072894-\$ or US-6038333-\$ or US-6035055-\$ or US-6018592-\$ or US-5982912-\$ or US-5963670-\$ or US-5917940-\$).did.) and 3d and rotation	USPAT	OR	OFF	2003/11/19 15:58

EAST Search History

S16	4	3D and ((fac\$5 near3 (determin\$5 or extract\$5)) near3 image\$1) same (template\$1 near3 (match\$3 or compar\$6))	USPAT	OR	OFF	2003/11/20 13:41
S17	0	3D near3 (fac\$3 near3 (detect\$3 or identif\$6 or recogn\$5 or segment\$6)) same (resolution\$1 near3 (different or multiple))	USPAT	OR	OFF	2003/11/20 14:25
S18	2	3D near3 (fac\$3 near3 (detect\$3 or identif\$6 or recogn\$5 or segment\$6)) and (resolution\$1 near3 (different or multiple))	USPAT	OR	OFF	2003/11/20 14:26
S19	18	3D near3 (fac\$3 near3 (detect\$3 or identif\$6 or recogn\$5 or segment\$6))	USPAT	OR	OFF	2003/11/20 14:30
S20	118	3D same (fac\$3 near3 (detect\$3 or identif\$6 or recogn\$5 or segment\$6))	USPAT	OR	OFF	2003/11/20 14:45
S21	16	(3D same (fac\$3 near3 (detect\$3 or identif\$6 or recogn\$5 or segment\$6))) and (templat\$1 or kernal\$1)	USPAT	OR	OFF	2003/11/20 14:30
S22	102	(3D same (fac\$3 near3 (detect\$3 or identif\$6 or recogn\$5 or segment\$6))) not ((3D same (fac\$3 near3 (detect\$3 or identif\$6 or recogn\$5 or segment\$6))) and (templat\$1 or kernal\$1))	USPAT	OR	OFF	2003/11/20 14:37
S23	49713	(fac\$3 near3 (detect\$3 or identif\$6 or recogn\$5 or segment\$6))	USPAT	OR	OFF	2003/11/20 14:48
S24	367	((fac\$3 near3 (detect\$3 or identif\$6 or recogn\$5 or segment\$6))) and (templat\$1 near3 (match\$4 or compar\$4))	USPAT	OR	OFF	2003/11/20 14:47
S25	66	(fac\$3 near3 (detect\$3 or identif\$6 or recogn\$5 or segment\$6)) same (template\$1 near3 (match\$4 or compar\$4))	USPAT	OR	OFF	2003/11/20 14:49
S26	0	3D near3 (facial near2 template\$1)	USPAT	OR	OFF	2003/11/21 13:07
S27	0	3D near5 (facial near2 template\$1)	USPAT	OR	OFF	2003/11/21 13:07
S28	1	3D same (facial near2 template\$1)	USPAT	OR	OFF	2003/11/21 13:08
S29	1	3D same (fac\$3 near2 template\$1)	USPAT	OR	OFF	2003/11/21 13:08
S30	2	3D same (fac\$3 near4 template\$1)	USPAT	OR	OFF	2003/11/21 13:09
S31	17	(three near2 dimension\$5) same (fac\$3 near4 template\$1)	USPAT	OR	OFF	2003/11/21 13:10

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S32	33	(US-6493465-\$ or US-6498868-\$ or US-6501857-\$ or US-6529613-\$ or US-6529630-\$ or US-5963670-\$ or US-5982912-\$ or US-5842194-\$ or US-5715325-\$ or US-6574354-\$ or US-5771307-\$ or US-6594629-\$ or US-6640145-\$ or US-6028960-\$ or US-6301370-\$ or US-6477275-\$ or US-6018592-\$ or US-6038333-\$ or US-6035055-\$ or US-5850470-\$ or US-6075557-\$ or US-6072894-\$ or US-5901246-\$ or US-5912721-\$ or US-5917940-\$ or US-6243494-\$).did. or (US-6154559-\$ or US-5802220-\$ or US-6526161-\$ or US-6483532-\$ or US-6044168-\$ or US-6639998-\$ or US-6504944-\$).did.	USPAT	OR	OFF	2003/11/21 15:30
S33	2	((US-6493465-\$ or US-6498868-\$ or US-6501857-\$ or US-6529613-\$ or US-6529630-\$ or US-5963670-\$ or US-5982912-\$ or US-5842194-\$ or US-5715325-\$ or US-6574354-\$ or US-5771307-\$ or US-6594629-\$ or US-6640145-\$ or US-6028960-\$ or US-6301370-\$ or US-6477275-\$ or US-6018592-\$ or US-6038333-\$ or US-6035055-\$ or US-5850470-\$ or US-6075557-\$ or US-6072894-\$ or US-5901246-\$ or US-5912721-\$ or US-5917940-\$ or US-6243494-\$).did. or (US-6154559-\$ or US-5802220-\$ or US-6526161-\$ or US-6483532-\$ or US-6044168-\$ or US-6639998-\$ or US-6504944-\$).did.) and (display\$4 near2 (image\$1 and template\$1))	USPAT	OR	OFF	2003/11/21 15:42
S34	23	((US-6493465-\$ or US-6498868-\$ or US-6501857-\$ or US-6529613-\$ or US-6529630-\$ or US-5963670-\$ or US-5982912-\$ or US-5842194-\$ or US-5715325-\$ or US-6574354-\$ or US-5771307-\$ or US-6594629-\$ or US-6640145-\$ or US-6028960-\$ or US-6301370-\$ or US-6477275-\$ or US-6018592-\$ or US-6038333-\$ or US-6035055-\$ or US-5850470-\$ or US-6075557-\$ or US-6072894-\$ or US-5901246-\$ or US-5912721-\$ or US-5917940-\$ or US-6243494-\$).did. or (US-6154559-\$ or US-5802220-\$ or US-6526161-\$ or US-6483532-\$ or US-6044168-\$ or US-6639998-\$ or US-6504944-\$).did.) and color	USPAT	OR	OFF	2003/11/21 15:25

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S35	11	((US-6493465-\$ or US-6498868-\$ or US-6501857-\$ or US-6529613-\$ or US-6529630-\$ or US-5963670-\$ or US-5982912-\$ or US-5842194-\$ or US-5715325-\$ or US-6574354-\$ or US-5771307-\$ or US-6594629-\$ or US-6640145-\$ or US-6028960-\$ or US-6301370-\$ or US-6477275-\$ or US-6018592-\$ or US-6038333-\$ or US-6035055-\$ or US-5850470-\$ or US-6075557-\$ or US-6072894-\$ or US-5901246-\$ or US-5912721-\$ or US-5917940-\$ or US-6243494-\$).did. or (US-6154559-\$ or US-5802220-\$ or US-6526161-\$ or US-6483532-\$ or US-6044168-\$ or US-6639998-\$ or US-6504944-\$).did.) and ((skin or face) near3 color)	USPAT	OR	OFF	2003/11/21 15:28
S36	1	((US-6493465-\$ or US-6498868-\$ or US-6501857-\$ or US-6529613-\$ or US-6529630-\$ or US-5963670-\$ or US-5982912-\$ or US-5842194-\$ or US-5715325-\$ or US-6574354-\$ or US-5771307-\$ or US-6594629-\$ or US-6640145-\$ or US-6028960-\$ or US-6301370-\$ or US-6477275-\$ or US-6018592-\$ or US-6038333-\$ or US-6035055-\$ or US-5850470-\$ or US-6075557-\$ or US-6072894-\$ or US-5901246-\$ or US-5912721-\$ or US-5917940-\$ or US-6243494-\$).did. or (US-6154559-\$ or US-5802220-\$ or US-6526161-\$ or US-6483532-\$ or US-6044168-\$ or US-6639998-\$ or US-6504944-\$).did.) and ((chang\$3 or modify\$4 or alter\$4) near3 ((skin or face) near3 color))	USPAT	OR	OFF	2003/11/21 15:30
S37	4	(fac\$3 near3 template\$1) and ((chang\$3 or modify\$4 or alter\$4) near3 ((skin or face) near3 color))	USPAT	OR	OFF	2003/11/21 15:31
S38	1006	382/154,115,118,119.ccls.	USPAT	OR	OFF	2003/11/21 15:42
S39	160	382/154,115,118,119.ccls. and fac\$3 and template\$1	USPAT	OR	OFF	2003/11/21 15:43
S40	2048	(3D or (three near2 dimension\$4)) near "5" (fac\$3 near2 template\$1)	USPAT	OR	OFF	2003/11/23 11:57
S41	6	(3D or (three near2 dimension\$4)) near5 (fac\$3 near2 template\$1)	USPAT	OR	OFF	2003/11/23 11:57
S42	97	(3D or (three near2 dimension\$4)) near5 (fac\$3 near2 (template\$1 or kernal\$1 or mask\$1 or model\$1))	USPAT	OR	OFF	2003/11/23 12:24

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S43	39	((3D or (three near2 dimension\$4)) near5 (fac\$3 near2 (template\$1 or kernal\$1 or mask\$1 or model\$1))) and image\$1 and (fac\$3 near3 (extract\$4 or locat\$4 or determin\$5))	USPAT	OR	OFF	2003/11/23 12:23
S44	8	("5844573" "5990901" "6020892" "6147692" "6366281" "6268846" "6320583" "6362833").PN.	USPAT	OR	OFF	2003/11/23 12:01
S45	20708	image\$1 and (fac\$3 near3 (extract\$4 or locat\$4 or determin\$5))	USPAT	OR	OFF	2003/11/23 12:27
S46	680	(image\$1 and (fac\$3 near3 (extract\$4 or locat\$4 or determin\$5))) and (fac\$3 near2 (template\$1 or kernal\$1 or mask\$1 or model\$1))	USPAT	OR	OFF	2003/11/23 12:25
S47	17	(image\$1 and (fac\$3 near3 (extract\$4 or locat\$4 or determin\$5))) and (3D near4 (fac\$3 near2 (template\$1 or kernal\$1 or mask\$1 or model\$1)))	USPAT	OR	OFF	2003/11/23 12:27
S48	52	((image\$1 and (fac\$3 near3 (extract\$4 or locat\$4 or determin\$5))) and (((fac\$3 or skin) near3 (color or tone)) same (modify\$4 or alter\$4 or chang\$4))) and (template\$1 or kernal\$1 or mask\$1)	USPAT	OR	OFF	2003/11/24 14:51
S49	203	(image\$1 and (fac\$3 near3 (extract\$4 or locat\$4 or determin\$5))) and (((fac\$3 or skin) near3 (color or tone)) same (modify\$4 or alter\$4 or chang\$4))	USPAT	OR	OFF	2003/11/24 14:33
S50	0	(3d near2 (fac\$3 near2 template\$1)) and ((skin or flesh or fac\$3) near3 (chang\$3 or alter\$4 or modify\$4))	USPAT	OR	OFF	2003/11/24 14:53
S51	0	(3d near5 (fac\$3 near2 template\$1)) and ((skin or flesh or fac\$3) near3 (chang\$3 or alter\$4 or modify\$4))	USPAT	OR	OFF	2003/11/24 14:53
S52	0	(3d near5 (fac\$3 near5 template\$1)) and ((skin or flesh or fac\$3) near3 (chang\$3 or alter\$4 or modify\$4))	USPAT	OR	OFF	2003/11/24 14:54
S53	0	((three near2 dimension\$3) near5 (fac\$3 near5 template\$1)) and ((skin or flesh or fac\$3) near3 (chang\$3 or alter\$4 or modify\$4))	USPAT	OR	OFF	2003/11/24 14:54
S54	11	((three near2 dimension\$3) near5 template\$1) and ((skin or flesh or fac\$3) near3 (chang\$3 or alter\$4 or modify\$4))	USPAT	OR	OFF	2003/11/24 14:56
S55	101	(3d or (three near2 dimension\$4)) same (fac\$3 near3 (template\$3 or kernal\$3 or mask\$1))	USPAT	OR	OFF	2003/11/24 14:58

EAST Search History

S56	290	template\$1 same (((skin or flesh) near3 color) or (cyan near2 blue) or cyanblue or complimentary)	USPAT	OR	OFF	2003/11/24 15:07
S57	6578	template\$1 same (((skin or flesh) near3 color) or (cyan near2 blue) or cyanblue or complimentary or complementary)	USPAT	OR	OFF	2003/11/24 15:08
S58	5226	(template\$1 same (((skin or flesh) near3 color) or (cyan near2 blue) or cyanblue or complimentary or complementary)) and fac\$3	USPAT	OR	OFF	2003/11/24 15:08
S59	472	((template\$1 same (((skin or flesh) near3 color) or (cyan near2 blue) or cyanblue or complimentary or complementary)) and fac\$3) and (fac\$3 near3 (determin\$6 or locat\$6 or extract\$6))	USPAT	OR	OFF	2003/11/24 15:09
S60	323697	((template\$1 same (((skin or flesh) near3 color) or (cyan near2 blue) or cyanblue or complimentary or complementary)) and fac\$3) and (fac\$3 near3 (determin\$6 or locat\$6 or extract\$6))) and face or faces	USPAT	OR	OFF	2003/11/24 15:10
S61	99	((template\$1 same (((skin or flesh) near3 color) or (cyan near2 blue) or cyanblue or complimentary or complementary)) and fac\$3) and (fac\$3 near3 (determin\$6 or locat\$6 or extract\$6))) and (face or faces)	USPAT	OR	OFF	2003/11/24 15:10
S62	40	template\$ near5 ((different or multiple) near3 color\$1)	USPAT	OR	OFF	2003/11/24 15:42
S63	2	"6075557".pn.",6044168".pn.	USPAT	OR	OFF	2003/11/25 15:56
S64	4	"6044168".pn.",6075557".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/25 15:20
S68	4	"6044168".pn.",6075557".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 13:50
S69	2	S68 and (user\$1 or manual\$2)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 13:52

EAST Search History

S70	37996	((face faces facial) same (rotat\$6 transform\$6 mov\$6 chang\$6 alter\$8 modif\$8)) same (user\$1 or manual\$2))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 14:13
S71	5397	S70 and human	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 13:54
S72	989	S70 and ((template\$2 kernal\$1 reference\$1 mask\$1) near3 (compar\$4 match\$3 correlat\$6))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 14:14
S73	966	S72 and (position\$1 location\$1 point\$1 fiducial\$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 14:05
S74	637	S73 and imag\$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 14:08
S75	197	S74 and (fac\$5 near3 recogni\$7)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 14:09
S76	2299	((face faces facial) same (rotat\$6 transform\$6 mov\$6 chang\$6 alter\$8 modif\$8)) near4 (user\$1 or manual\$2))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 14:13
S77	91	S76 and ((template\$2 kernal\$1 reference\$1 mask\$1) near3 (compar\$4 match\$3 correlat\$6))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 14:35
S78	34	((fac\$5 near3 recognition) same (template\$1 kernal\$1 mask\$1 and refernece\$1)) same (user or manual\$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 14:41
S79	231	((fac\$5 near3 recognition) same (template\$1 kernal\$1 mask\$1 and refernece\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 14:41

EAST Search History

S80	211	S79 and (rotat\$8 transform\$6 alter\$9 modif\$7mov\$6 chang\$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 14:54
S81	167	S80 and (user\$1 or manual\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/03/06 15:24
S82	4	"6044168".pn.",6075557".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 11:45
S83	309	(faci\$4 near4 (match\$4 compar\$4 identif\$6)) and ((imag\$1 same (template\$1 kernal\$1 mask\$1 reference\$1 standard\$1)) same display\$2)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 11:50
S84	147	S83 and ((user manual\$4) same (mov\$6 transform\$6 rotat\$4 alter\$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 12:29
S85	247247	"84" and (face faces facial)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 12:30
S86	309	(faci\$4 near4 (match\$4 compar\$4 identif\$6)) and ((imag\$1 same (template\$1 kernal\$1 mask\$1 reference\$1 standard\$1)) same display\$2)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 12:29
S87	147	S86 and ((user manual\$4) same (mov\$6 transform\$6 rotat\$4 alter\$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 12:29
S88	108	S87 and (face faces facial)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 15:05
S89	5	"2324428".pn.",0877274".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 15:09

EAST Search History

S90	0	"00877274".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 15:06
S91	5	"877274".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 15:06
S92	4	"2324428".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 15:09
S93	8	"4996642".pn.",5576778".pn.", 5983201".pn.",6231188".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/01 15:24
S94	11	((face faces facial) near4 (recogni\$6 identif\$8)) same (imag\$4 and template\$1) same (interactiv\$5 manual\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/02 15:14
S95	15	((face faces facial) near4 (recogni\$6 identif\$8 extract\$5)) same (imag\$4 and template\$1) same (interactiv\$5 manual\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/02 15:16
S96	4	S95 not S94	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/02 15:15
S97	130	((face faces facial) near4 (recogni\$6 identif\$8 extract\$5)) same (imag\$4 and template\$1) and (interactiv\$5 manual\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/02 15:16
S98	509	((fac\$4 near4 (recogni\$7 identif\$4 extract\$4)) same template\$1) and (user\$1 interactiv\$5 manual\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/02 16:53
S99	274	((((face faces facial) near4 (recogni\$7 identif\$4 extract\$4)) same template\$1) and (user\$1 interactiv\$5 manual\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/02 16:54

EAST Search History

S10 0	688	(fac\$4 same template\$1) same display\$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/02 16:54
S10 1	33	S99 and (fac\$4 same template\$1) same display\$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/02 16:54
S10 2	1	((((face faces facial) near5 (recogniz\$7 identif\$7 extract\$5)) same imag\$4) same (complementary near3 color\$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/03 17:32
S10 3	1	((((face faces facial) near5 (recogniz\$7 identif\$7 extract\$5)) same imag\$4) same (3D and wire)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/03 17:34
S10 4	53	((((face faces facial) near5 (recogniz\$7 identif\$7 extract\$5)) same imag\$4) and (3D and wire)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/03 17:40
S10 5	27	((((face faces facial) near5 (recogniz\$7 identif\$7 extract\$5)) same imag\$4) and (3D and wire) and template\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/03 17:41
S10 6	0	((((face faces facial) near5 (recogniz\$7 identif\$7 extract\$5)) same imag\$4) and ((3D and wire) same template\$)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/04/03 17:41
S10 7	629	imag\$4 and (((face faces facial) near3 (template\$1 kernal\$1 mask\$1)) same ((face faces facial) near3 (imag\$4 frame\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 09:49
S10 8	290	S107 and ((transform\$3 rotat\$4 mov\$4 translat\$6) same ((templat\$1 imag\$4) and (faces face facial)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 10:08
S10 9	53	S108 and (((template\$1 mask\$1 kernal\$1) same (image\$1 frame\$1)) same align\$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 10:39

EAST Search History

S11 0	93	((template\$1 mask\$1 kernal\$1) same (image\$1 frame\$1)) same (face facial faces) same (superimpos\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 11:00
S11 1	1585	((template\$1 mask\$1 kernal\$1) same (image\$1 frame\$1)) same (face facial faces) same ((on near3 top) above layer\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 11:38
S11 2	213	S111 and (((extract\$4 locat\$4 determin\$4) near4 (face faces facial)) same imag\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 11:02
S11 3	67	((template\$1 mask\$1 kernal\$1) same (image\$1 frame\$1)) same (face facial faces) same (overlay\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 12:13
S11 4	6673	((template\$1 mask\$1 kernal\$1) same (image\$1 frame\$1)) same (face facial faces)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 12:14
S11 5	232	S114 and (position\$3 near4 match\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 12:14
S11 6	16	"6088040"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 13:47
S11 7	48	((extract\$6 near4 (face faces facial)) near4 (region\$1 area\$1)) same ((template\$1 kernal\$1 mask\$1) and match\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/12/27 13:49
S11 8	290	((face faces facial) and (imag\$4 and (templat\$4 kernal\$1 mask\$1))) same (superimpos\$4 overlay\$4 overlaid)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/01/04 14:52
S11 9	51	S118 and (((locat\$6 extract\$5) near5 (face faces facial)) same imag\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/01/04 14:52

EAST Search History

S12 0	727	((face faces facial) and (imag\$4 and (templat\$4 kernal\$1 mask\$1))) same (move moving)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/01/04 14:52
S12 1	108	S120 and (((locat\$6 extract\$5) near5 (face faces facial)) same imag\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/01/04 14:52
S12 2	6	"6088040".pn.",6181806".pn.", 6035074".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/01/06 15:11
S12 3	103	((extract\$4 near4 (face faces facial)) near4 imag\$4) same template\$1 same ((position\$1 location\$1) (match\$4 compar\$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/01/06 15:29
S12 4	0	((face near5 recogni\$7) same (template near5 match\$4) same (unsharp\$5 blurr\$6))	USPAT	OR	OFF	2006/07/19 16:41
S12 5	30	((face near5 recogni\$7) same (template\$ near5 match\$4))	USPAT	OR	OFF	2006/07/19 17:16
S12 6	3	((unsharp\$6 blur\$7) near5 (imag\$4 and template\$4)) and imag\$4	USPAT	OR	OFF	2006/07/19 17:22
S12 7	14019	((unsharp\$6 blur\$7) near5 (imag\$4 template\$4)) and imag\$4	USPAT	OR	OFF	2006/07/19 17:23
S12 8	144	S127 and (templat\$4 near4 match\$4)	USPAT	OR	OFF	2006/07/19 17:41
S12 9	0	(template\$4 near4 match\$4) same ((unsharp\$5 blur\$4) near4 (template\$1 and imag\$4))	USPAT	OR	OFF	2006/07/19 17:42
S13 0	8	(template\$4 near4 match\$4) same ((unsharp\$5 blur\$4) near4 (template\$1 imag\$4))	USPAT	OR	OFF	2006/07/19 17:42
S13 1	0	(blur\$6 near4 template\$1) and (template near3 match\$4)	USPAT	OR	OFF	2006/07/20 07:57
S13 2	2	(blur\$6 near4 template\$1) and (template near3 match\$4)	USPAT	OR	OFF	2006/07/20 07:58
S13 3	0	(unsharp\$4 near4 template\$1) and (template near3 match\$4)	USPAT	OR	OFF	2006/07/20 07:59
S13 4	0	(unsharp\$4 near49 template\$1) and (template near3 match\$4)	USPAT	OR	OFF	2006/07/20 07:59
S13 5	7	(blur\$6 near9 template\$1) and (template near3 match\$4)	USPAT	OR	OFF	2006/07/20 08:01

EAST Search History

S13 6	4	(blur\$6 near9 template\$1) and (position near3 match\$4)	USPAT	OR	OFF	2006/07/20 08:01
S13 7	0	(unsharp\$4 near9 template\$1) and (position near3 match\$4)	USPAT	OR	OFF	2006/07/20 08:02
S13 8	4	(sharp\$4 near9 template\$1) and (position near3 match\$4)	USPAT	OR	OFF	2006/07/20 08:02
S13 9	3	"6181806".pn.",6035074".pn.", 6466685".pn.	USPAT	OR	OFF	2006/07/20 09:00
S14 0	5251	382/100,115,118,119,154,162,165, 181,195,201,209.ccls.	USPAT	OR	OFF	2006/12/22 10:26
S14 1	555	S140 and (template\$1 kernal\$1 mask\$1) and (face faces facial)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/12/22 10:27
S14 2	20	S141 and ((unsharp\$4 blurr\$4 focus\$4) near6 (template\$1 kernal\$1 mask\$1))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/12/22 10:40
S14 3	116	((face faces facial) and (template\$1 kernal\$1 mask\$1) and (unsharp\$5 blur\$4 focus\$4)).clm.	US-PGPUB	OR	OFF	2006/12/22 10:54
S14 4	40	((face faces facial) and ((template\$1 kernal\$1 mask\$1) same (unsharp\$5 blur\$4 focus\$4))).clm.	US-PGPUB	OR	OFF	2006/12/22 10:58
S14 5	76	S143 not S144	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/12/22 11:01